REPORT OF THE C&P MISSION

TO BRAZIL TO INITIATE THE C&P - SAO PAULO

MOU ON ENVIRONMENTAL COOPERATION

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Conservation & Protection

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EXECUTIVE SUMMARY

BACKGROUND

Cooperation between Canada and Brazil

In 1985, Canada signed a Science and Technology Cooperation Agreement with Brazil. This was followed, in 1989, by a more specific MOU on environmental cooperation between the Environmental Secretariat of the State of Sao Paulo (SMA) and Environment Canada, Conservation & Protection (C&P).

The C&P/SMA MOU specifies that a Working Group would be established and that its first meeting will take place in Brazil. Officials from the State of Sao Paulo had high expectations and were anxious to have a senior delegation visit Brazil to meet with their senior officials and initiate joint projects. While commitments had been made for a visit either in June or September 1989, C&P was not able to do so for operational reasons. In December 1989, the C&P Executive Committee asked the Policy Branch to brief Mr. A. Campeau, Special Advisor to the Minister, on the situation and ask him to lead a delegation.

The invitation was accepted as an opportunity to undertake an environmental mission to Brazil in addition to fulfilling the commitments made in respect of the C&P/SMA Memorandum of Understanding. The delegation was comprised of Mr. Arthur Campeau, officials from External Affairs Canada from Ottava and from the Embassy in Brazil and Consulate in Sao Paulo; Departmental officials from Corporate Planing Group; and (a) three persons technical delegation from Conservation & Protection.

The Context and Objectives of the Environmental Mission to Brazil

From a strategic perspective, Brazil is becoming increasingly important to Canada. More specifically:

- Brazil has huge natural resource reserves and tremendous development potential;
- Brazil will host the 1992 UN Conference on Environment and Development;
- Brazilians have a very positive viev of Canadians, particularly from an environmental point of viev;
- Canada has just developed a foreign policy intended to broaden relations with South America. Environment is a priority in that policy.

The environmental mission to Brazil was vieved as an opportunity for the Department to explore a number of environmental initiatives with that country. The undertaking of the mission was consistent with External's wishes and may lead to a Ministerial visit and the negotiation of a MOU on environmental cooperation at the federal level.

The results of the environmental mission are summarized in a separate report entitled "Report of the Environmental Mission".

Meetings were held with Sao Paulo State officials, key individuals in the departments and agencies of the environment and external affairs, members of the newly-elected Collor government, representatives of the non-government sector, industry, environmental organizations and the scientific community.

The primary objective was to explore the feasibility of expanding the scope of cooperation to involve the Brazilian federal government with the view of signing a broad umbrella cooperation agreement that would provide a framework for specific projects.

Other objectives of the mission were:

- to establish contact with officials of the agency organizing the 1992 Conference on Environment ar] Development;
- to acquire information on Brazilian policies and programs on the environment and in particular, orientation of the new government and identification of the key participants;
- to establish contacts with a variety of Brazilian institutions connected with environmental matters, such as research centres, universities, ENGOs, with a view of promoting exchanges of expertise with Canadian institutions.

The Technical Mission

The mandates of the Technical Mission were to support the broad environmental and to initiate the process to implement the MOU between C&P and the State of Sao Paulo.

The object of the report is to outline the results of the meeting with the Environment Secretariat of the State of Sao Paulo and CETESB to initiate the MOU.

Article 2 of the MOU specifies that SEMA, Secretaria Especial do Mei Ambiente (since renamed SM A), designate CETESB, as the executing agent for the purpose of implementing the arrangement. The Director-President of CETESB administers the Arrangement for SMA. The Assistant Deputy Minister of Conservation & Protection administers the Arrangement for C&P.

Article 2.5 specifies that a Joint Working Group will be established to administer and implement the Arrangement. The original document determines that the Group will consist of four members, two members from each country and will meet at least once every two years.

The location of the meeting will alternate between the two countries starting with Brazil.

Prior to the February 1990 visit, there were a number of contacts between officials of Conservation & Protection and CETESB officials regarding potential areas of work which could form the basis of a plan as they document those outlined in the Annex of the MOU. The MOU is attached for ease of reference. (See Annex A).

PARTICIPANTS AT THE FEBRUARY 5 1990 MEETING

CETEBS

- Antonio Carlos Rossin
  Assessor Diretoria de Desenvolvments
  de Programas e Mobilizace - CETESB

- Eduardo Luis Serpa
  Engineer - Departamento de Controle da Regias Metropolitane
  Directoria de Controle - CETESB

- Minaj José Bassor
  Engineer - Departamento de Controle do Interior
  Directoria de Controle - CETESB

- Cellia J. Castello
  Gerente, Assesoria Cooperasças Estevines - CETESB

- Volf Steinoaum
  Assistant in Technology Transference - CETESB

- Carai Ribeiro de Assis Bastos
  Gerente - Diretoria Norman e Padroes Ambientais - CETESB

OFFICE OF THE MINISTER STATE SECRETARIAT FOR ENVIRONMENT, SAO PAULO

- Ana Lucia Segamarchi
  Advisor of the Environmental Secretary of the State of Sao Paolo
  Responsible for the Technical Cooperation Area

- José Roberto Costa
  Assiste tecmio da Coopalemadosia de Informacies Trémias
  e Pesquisa Ambieute de Sao Paolo

SECRETARIA DO MEIO AMBIENTAL SAO PAULO (SMA)

- Leni Alves-Ferreira
  Assistente técnica
  SMA/SPLA/Depts de Avaliacas Ambiental

- José Paulo Ganzeu
  Arquiheto - Coordensdorid de Planejamento Ambiental
  SMA

- Irineo Yoshiaki Sugahara
  Arquiteto - Coord. de Planejamento Ambiental
  SMA

- Fernando Gimenez
  Geologist
  Environmental Planning
  SMA

EXTERNAL AFFAIRS, SAO PAULO CONSULATE

- William A. Jackson
  External Affairs
  Consulate
  Sao Paulo

ENVIRONMENT CANADA

- Jean-Romain Rousseau
  Senior Policy Advisor
  Conservation and Protection
  Environment Canada

- Alain Jolicoeur
  Director
  Technology Development
  Environment Canada

- Ed Ongley
  Director, Rivers Research Branch
  National Water Research Institute
  Canada Centre for Inland Waters

INSTITUTIONS*

Brazil

Brazil is a federation. It includes one federal district and 27 states. Brazil has an area of 8,511,965 km², a coastline of 7,408 km, 12 great water basins, totaling 55,457 km² bearing a hydroelectric capacity of 106,499 megawatts. Brazil has a population of 144,427,600. Seventy two percent of the population lives in cities. There are 4,103 municipalities.

In spite of its growing modern economy, Brazil has yet to solve its poor income distribution, illiteracy and epidemics deriving from poor sanitation and malnutrition.

Brazil has the difficult challenge of implementing an adequate and sustainable development program, while preserving the ecology, supporting social welfare and promoting economic growth.

The State of Sao Paulo

It includes over 583 municipalities, an area of 247,898 km², and a population of over 32,000,000 which is projected to reach over 40,000,000 by the turn of the century. One third of the population is located in the Greater Sao Paulo Area (21 million forecast for the year 2000). The State of Sao Paulo is highly urbanized (90%) and its capital is the world's fifth in terms of population, and is projected to climb to 2nd place by the beginning of the next century.

Producing 42% of Brazil's Gross Domestic Product, the State of Sao Paulo has 80,000 factories, half of them located in Greater Sao Paulo. Cubatao, known in the past for its high pollution rate, alone has 23 industrial complexes, amounting to 110 plants. It is also rich in terms of agriculture: producing 60% of Brazil alcohol derived from sugar-cane, (1.9 million hectares or 7.6% of the state area) and has the world's second largest 120 million orange groves.

The most of the Atlantic Coastal Rain Forest is located in the State of Sao Paulo, along the Serra do Mar range, a stretch of 400 km. Its estuary on the southern coast is a very rich region to be preserved, teeming with mangroves and canals.

The Environmental Secretariat of the State of Sao Paulo

The Environmental Secretariat of the Sate of Sao Paulo is know as the Secretaria do Meio Ambiente (SMA). It was founded in 1986 and fully re-structured in March 1987, having a staff of 5,000 persons, of which 60% are based in the capital. Programmed activities are organized into 4 Directorates.

- Preservation of parks and natural areas
- Environmental education
- Environmental planning
- Environmental research and informatics

* **Based on existing documentation.**

To complement these activities, the Secretariat is responsible for and supported by:

. one Project Department

. three research institutes (forestry, geology and botany)

. a forest ranger police force of 2,000 persons to control fishing, hunting and forests.

. CETESB, a public company for technological development and pollution control;

. a foundation (Forestall Foundation) which oversee forest production;

. a State Council (CONSEMA);

. a State Committee (CODEL) to deal with ecological accidents; and

. 157 municipal action-groups.

Forestall Institute

The Forestall Institute takes care of preserving permanent natural areas, plants new forests, researches forestall species, maintains a museum, collects seeds and produces native trees for restoring forest areas as well as for commercial use.

Botanic Institute

The Botanic Institute, conducts research and surveys natural vegetation, supports research and is reorganizing the Botanical Garden.

Geological Institute

The Geological Institute is working on the geological mapping of the whole state and provides scientific support on planning land use and scientific support on geotechnical problems like underground water resources and mountain slope preservation.

CETESB

CETESB is a technology center and a pollution control agency with a 20-year experience in pollution control. It is also responsible for the environmental licensing of urban developments, industrial operation and vehicle engines. This company is well known in Brazil and Latin America for its regulations, legislation and control over environmental standards. It is responsible for the successful control of Cubatao's pollution.

COSEMA

COSEMA is a State Council that convenes monthly to debate environmental problems and decide on Impact Studies reports prepared by SMA. Of its 34 members, 17 are non-governmental (research institutes, unions, 6 environmentalist representatives, mayors association, justice).

CODEL

CODEL is also a mixed committee. It prevents and controls coastal and marine ecological accidents.

CONDEMA

CONDEMAs are mixed action-groups formed in municipalities and aim at working in favour of a better local environment. There are presently 157 CONDEMAs in the State of Sao Paulo.

The Environmental Situation in the State of Sao Paulo

The Secretariat was reorganized in 1987. It basic mandate is the preservation of natural resources and the control of pollution. It's main priorities are a reflection of the environmental situation in the State of Sao Paulo.

- Recover and protect of 12,500 km² of original forest; 400 km of coast line, 1.3 million hectares of officially preserved areas;
- maintain 84 public preservation units;
- control pollution in rivers, lakes and urban air, urban noise and garbage;
- controlling Cubatao's pollution;
- airborne seeding of affected slopes in Serra do Mar;
- transfer of dwellers in dangerous slopes of Serra do Mar;
- the refinement of impact studies analysis and evaluation;
- orientation of final disposal of industrial garbage;
- norms and control of vehicle pollution;
- Campinas new ecological park and eco-museum;
- Sao Paulo's new Botanical Garden;
- the legal zoning of coastal areas;
- ecological tourism in protected parks;
- Piracicaba's river pollution control;
- Paraiba's river pollution control standards;
- the environmental planning of land use in protected areas (APA);
- new sewage biotechnology research for large cities;
- systematic prevention of forest fires;
- comprehensive inter-state protection of the Atlantic rain forest;
- educational and editorial program;
- technical criteria and norms for new industrial districts.

Canada

The Constitution Act, 1982 maintains not only the institutions through which legislative, executive and judicial powers are exercised, but also the federal form of government. Canada has 10 provinces and two territories. The central government, the federal government, has jurisdiction primarily over matters of national concern and over those matters not assigned to the provinces. In particular, each provinces administers its own natural resources.

Canada has a recorded area of 9,970,610 km^2 for land and freshwater. It is the second largest country in the world.

There is no permanent settlement in large parts of Canada. About 60 per cent of Canada population lives along the American border. Canada population is estimated at 26 million. There are 4,238 municipalities.

Canada territory extends from east to west. As a result, it has six time zones. The most easterly is three hours and 30 minutes behind UTC and the most westerly is eight hours behind UTC.

Canada has four major drainage basins: Atlantic, Pacific, Arctic, Hudson Bay. Canada has a number of major rivers. Canada coastlines measures 244,000 km.

Environment Canada

The Department of the Environment was created in June 1971 by amalgamating various entities within the federal government that were responsible for the natural environment. Subsequent organizational adjustments separated the fisheries and marine component; added all elements of Parks and transferred the Canadian Forestry Service to Agriculture Canada.

The legal instruments establishing Environment Canada recognizes that preserving and improving Canada's environmental quality is a responsibility of all federal departments, the provincial governments and the public.

The Act gives the Minister of the Environment broad responsibilities to promote practices that lead to the improvement and preservation of environmental quality. It also enables the Minister to cooperate with provincial governments and their agencies and any other organization having similar environmental objectives.

As well, the legal instruments empower the Minister to establish guidelines and advise heads of departments, boards and agencies of the federal government in all matters pertaining to preserving and improving the quality of the natural environment.

Finally, Environment Canada has a mandate to undertake a wide range of environmental research particularly as it relate to water and the Canadian Environmental Proctection Act. It manage research facilities and centers.

The Department's mandate includes the administration of the 19 federal Acts assigned to it, and particular responsibilities provided for in Acts assigned to other departments and agencies.

Specifically, the duties, powers and functions of the Minister of the Environment extend to and include:

- the preservation and enhancement of the quality of the natural environment, including water, air and soil;
- renevable resources, including migratory birds and other non-domestic flora and fauna;
- water;
- meteorology;
- the enforcement of rules and regulations made by the International Joint Commission relating to boundary waters, and questions arising between the United States and Canada;
- the coordination of the policies and programs of the Government of Canada respecting the preservation and enhancement of the quality of the natural environment;
- the protection and presentation of national parks, national historic sites and historic canals and the National Battlefields Commission.

Environment Canada is highly decentralized, with approximately 82% of the employees located in regional and field offices. This high degree of decentralization is required to respond to the varying needs in all regions of Canada and to the environmental issues affecting them.

Environment Canada has grouped its activities into three Programs. They are:

° Administration, which provides corporate management; strategies, policy and planning; guidance on priority issues; and corporate finance, personnel and administrative support services to the Department. It also includes the administration of the Environmental Assessment and Review Process.

° Parks, which establishes, develops and manages national parks, national marine parks, national historic sites, historic canals, cooperative heritage areas and Canadian heritage rivers;

° Environmental Services, which provides information on weather, climate, ice, sea-state and air quality, promotes the conservation and protection of inland waters, lands and wildlife, and develops preventive or corrective measures for maintaining and improving environmental quality.

The Environmental Services Program has primary responsibility for matters relating to the environment, and for promoting and sustaining the economic use of Canada's wildlife, air, land and inland water resources. The Environmental Services Program is divided into two services: Conservation & Protection and Atmospheric Environment.

The Atmospheric Environment Activity is responsible for providing, on a 24-hour basis, severe weather warnings and forecasts and other information on weather, sea-state, ice, climate and air quality conditions. It also supports and carries out research in these areas.

The Conservation & Protection Activity fulfills federal responsibilities relating to the sound management of Canada's water and land resources, migratory birds and threatened and endangered species. It also plays a key role in developing and maintaining the knowledge base necessary for assessing the significance of environmental threats arising from human activities, and for devising consultation, advocacy and regulatory activities.

Conservation & Protection has three Headquarter Directorates and five regions.

Inland Waters Conservation

The objective of Inland Waters Conservation is to promote sound management and development of Canada's water resources. Inland Waters Conservation meets federal responsibilities under the Canada Water Act, the Boundary Waters Treaty Act and the International River Improvements Act, it administers 37 federal-provincial agreements negotiated under the Canada Water Act that deal with flood damage reduction, river-basin planning and implementation, and water quantity and quality surveying activities. Inland Waters Conservation will expend $122.6 million and 1,045 person-years in 1990-91.

Wildlife Conservation

The objectives of Wildlife Conservation are to maintain and enhance the populations of migratory birds and other wildlife and their habitats, and ensure the sustainability of wildlife benefits to society. Federal responsibilities are administered and met under the Migratory Birds Convention Act, the Canada Wildlife Act, the Game Export Act, the Canadian Environmental Protection Act and 32 major international and federal-provincial agreements. Wildlife Conservation will expend $49.7 million and 369 person-years in 1990-91.

Environmental Protection

The objective of Environmental Protection is to influence the activities of the federal, provincial and municipal governments, industry and the public for the benefit of the Canadian environment and the sustained economic and social benefit of all Canadians. Environmental Protection meets its federal responsibilities under the Canadian Environmental Protection Act and the pollution control provisions of the Fisheries Act. Environmental Protection will expend $105.2 million and 654 person-years in 1990-91.

REVIEW OF POTENTIAL AREAS OF INTERESTS

In recent years, officials of Conservation & Protection have been in contact with officials of CETESB, In particular, Dr. E. Ongley visited CETESB in 1986 and 1988 as a consultant for WHO. In 1989, Mr. V. Niemela, Director of the Water Quality Branch visited Sao Paulo and CETESB. Furthermore, Dr. A. Demeyo has maintained effective liaison. As a result, documents were exchanged concerning the potential area of interests which could form the basis of an action plan. These documents are reproduced below under the section Research a.eas.

POLICY AREAS

As part of the Environmental Mission, the Canadian delegation met, on February 5, the Minister, Mr. Jorge Wilhelm, Sao Paulo State Secretariat for Environment and the President of CETEBS to review the main areas of interests and the priorities. The following points were made by Minister Wilhelm:

- it is important to initiate the Agreement, undertake projects and, nominate members of working group;
- the scope of activities should be expanded although pollution should remain at the top of agenda;
- the State Secretariat might be appointed executing agency;
- there is a need to provide funds to assist a Brazilian delegation to travel to Canada;
- changes at the federal and state levels will necessitate reviews of the present approach to policy formulation such as economic growth and environmental quality for example.

Concerning specific areas, the Minister pointed out a number of priorities and emerging issues such as:

- the need to take better care of the urban environment;
- the management of coastal and marine resources through CODEL;
- the development of parks and natural areas and the protection of wildlife and fauna;
- the need to undertake the clean-up of rivers and to balance the growth of cities and industrial development to reduce the spill over effects;
- the need to develop a new approach to the "fuel policy" for vehicles, i.e. the conversion of gas/oil to natural gas;
- the management of natural forests, and the protection of the resources;

- the development of ecological parks and the implementation of ecological planning/conservation unit;

- the development of better educational programs at the university level and in the public;

- the resolution of the financing aspects of environmental initiatives;

On behalf of Canada, Mr. Campeau indicated that:

- Canada was interested in expanding the scope of cooperation;

- the technical mission will initiate the Agreement and establish the working group;

- Canada was looking forward to open new avenues of cooperation and communication; and - the mission will no doubt come back with an excellent understanding of the people and institutions responsible for environmental matters and an up-to-date appreciation of the environmental issues and priorities. In this aspect, he pointed out the need for consultation in regard of IPCC meetings and the organization of the 1992 Conference.

Review of SMA activities showed many areas of interest to Environment Canada expertise.

Meeting with executives of CETEBS confirmed that CETEBS priorities and capabilities were compatible with those of Environment Canada.

CETESB President, Mr. Meneses, noted the role played by CETESB as educator and disseminator of information in Brazil and Latin America.

RESEARCH AREAS

The following topics were proposed by CETESB and Conservation & Protection as the basis for the development of the work plan of activities to be carried out under the MOU.

CONSERVATION & PROTECTION

Short Term

Brazilian Expertise of Interest

- Vehicle emissions studies, especially those related to alcohol fuel.

- Public information programs and materials.

Canadian Expertise/Technology Ready For Dissemination

Application of new, cost effective municipal and industrial wastewater treatment technologies:

- Fuel from sludge
- CRIQ ring press
- Sludge conditioning controller
- High rate anaerobic process
- Industrial pretreatment

Long Term Joint Projects

- Effects of deforestation on river hydrology (water quality and quantity) and sediment processes.
- Sediment transport and land erosion, and their effects on water quality.
- Methodology for environmental assessment, including SOE reporting and environmental monitoring.
- Operational program management for water quality and quantity, and land use.

Information Exchangee on Global Environmental Issues

- Climate change
- Sustainable development

CETESB

1. Water Quality Monitoring

° Review priorities and strengthen CETESB capabilities in monitoring strategies, data evaluation and assessment, for both fresh waters and sediments.

° Review interpretive procedures for the examination of above water quality data, in order to eliminate errors; to detect redundancies; to print out anomalies, to examine water quality and sediment data sets; to improve analytical and sampling techniques towards achieving the required detection limits.

° Assist in the establishment and implementation of a water quality, quality and effluents database to be used in a information system, for water resource management purposes.

- ° Assist in developing and implementing methods for statistically analyzing water quantity, water quality and other environmental data, for detecting trends as well as determining compliance with water quality standards.

- ° Assist in establishing a biomonitoring capability.

- ° Collaborate in the development of methods for decision making as accruing from the analysis and synthesis of the water quality and pollutant load data.

2. Groundwater Activities

- ° Collaborate in the development of strategies for groundwater monitoring.

- ° Collaborate in the development of strategies for which assessment in groundwater.

- ° Assist in the establishment and implementation of a groundwater database.

3. Toxic Chemicals

- ° Collaborate in the study of environmental fate and effects.

- ° Collaborate on research on analytical methods for new compounds.

- ° Assist in developing procedures for dealing with emergencies.

4. Laboratories

- ° Methodology for physico-chemical, biological and microbiological analysis for water, sediment and biota.

- ° Data Analysis.

- ° Quality Assurance.

- ° Analytical Instrumentation.

- ° Laboratory Management.

- ° Bioassays.

5. Development of Clean Technologies

- ° Transfer of new technologies for chemicals, petrochemicals, pulp and paper and metallurgical industries which minimize the liquid, gaseous and solid waste pollutants discharged in the air, water and soil.

° Visit of one engineer to the main Canadian agencies which develop environmental clean technologies.

° Consultant from Canada to develop with CETESB appropriate projects.

6. Anaerobic Treatment in Upflow Blanket Filter Reactors

° A one week consultantship on Anaerobic Treatment in Upflow Blanket Filter Reactors (UASB) which will include two lectures, of one hour each, on following themes:

° Comparison between UASB reactor and anaerobic filter with emphasis in the respective limitations and the UBF reactor (upflow blanket filter) as an alternative;

° UBF - its capacity of biomass retention. Special emphasis on actions taken to reach these conclusions.

7. Wastewater Treatment of Hazardous, Toxic and Refractory Pollutants

° Technology transfer for the treatment of industrial wastewater containing hazardous, toxic and refractory substances, such as solvents, and halogenated organics, the sludge produced, and for dealing with the environmental problems in the treatment area.

8. Technology Transfer, Joint Projects and Publications

° Training, organization of workshops and/or seminars on specific themes.

° Interchange between professional, professors and technicians.

° Long Range transport of atmospheric pollutants.

° Environmental regulation.

° Management of environmental programs.

° Production of publications and audio visual material.

9. Evaluation of Impact on Reservoirs Water Quality Caused by the Vegetation and Soil Decomposition in the Flooded area

10. SOE Reporting and Data Assessment

° Collaboration in developing environmental indicators.

° Training on the use of "DETECT" obtained from INRS - Quebec City.

11. Environmental Impact Assessment (EIA)

- Creation of a computerized environmental information system
- Improvement of specific guidelines for EIA
- Training of Brazilian specialists

12. Planning and Management of River Basins

- There is a special interest on plans based on the Canada Water Act (1970) related to highly urbanized areas, with pollution and water use conflicts, the Great Lakes area and Nelson River basin.
- Basin planning, including: formulation and choice of development plans; studies on technical and economical feasibility, assessment of social and environmental impacts.
- River basin management, including studies on technical and financial administration, public information systems, public participation in planning, policy development and program implementation.

13. Collaboration and Exchange of Information

- Methodologies for monitoring the toxicity of various environmental contaminants to algae, fish and other aquatic life.
- New wastewater treatment studies and technologies, and sludge disposal focusing in anaerobic process for wastewater treatment.
- Risk assessment and relationships between air pollution and human health.
- Organization and management of national/provincial parks, including surveillance programs for preserving the wildlife.
- Operational programs for information centres collecting and making available scientific information related to environment.
- Expert systems applied to environmental management.

RESULTS OF DISCUSSION. IMPLEMENTATION & FOLLOW-UP

Working Group Composition

It was agreed, at the February 5 1990 meeting between Minister J. Wilhelm, SMA, Sao Paulo and Mr. A. Campeau, Head of the Canadian Delegation, that the Joint Working Group would be expanded to three persons from each side instead of two as stated in the original Memorandum of Understanding.

The MOU would be amended accordingly by exchange of letters between the Assistant Deputy Minister, Conservation & Protection and the President of CETESB as the Administrators of the Agreement.

Scope of Activities

It was agreed, at the meeting referred above, that the scope of cooperation would be broadened while, for the time being, pollution issues would remain the area of priority.

It was understood that the expanded Joint Working Group would prepare recommendations to the Administrators regarding the broadening of the scope of activities to be undertaken under the MOU.

It was pointed out by Canada that it would be beneficial to sign an agreement on environmental cooperation at the federal level which would facilitate such broadening of the areas of cooperation particularly those in respect of forestry, marine/coastal fisheries and resources.

It was noted by the State of Sao Paulo that there would be benefit in expanding cooperation beyond pollution control issues particularly to address the questions related to the management of resources.

Coordination

It was agreed that Mrs. Cellia Castello of CETESB and J. R. Rousseau of C&P will coordinate the exchange of information.

Exchange of Information

At the working session of February 5, attended by officials of CETESB and C&P Technical Mission, it was agreed that CETESB and C&P would exchange information concerning three major topics:

- environmental monitoring;
- pollution control technology;
- other broad issues as specified.

The specific areas of information are listed below.

A. ENVIRONMENTAL MONITORING

1. Emission from fuel blend
2. Bio monitoring
3. Sediment quality in lakes

B. POLLUTION CONTROL TECHNOLOGY

4. Clean technology
5. Anaerobic reactors (upglov sludge blanket)
6. Advanced wastewater treatment
7. Chemical spill counter measures

C. OTHER

8. Modelling, expert system and data assessment
9. Forest fire(with Forestry Canada)
10. Ecozone issues (definition, management)
11. Environmental impact assessment
12. SOE Indicators

Seminars

It was agreed that two engineers of the Technical Development Branch of C&P will organize a seminar in Sao Paulo on advance wastewater treatment technologies.

Visits of Research Facilities

It was agreed that when a technical delegation from CETESB come to Canada, there should be a visit of C&P research facilities and others as appropriate.

Training session

It was agreed that C&P will arrange for a training session on chemical spills counter measures for one or two CETESB employees at the River Road Technology Centre.

CETESB Delegation to Canada

It was agreed that before proposing specific joint projects, a technical delegation from CETESB should come to Canada. May 1990 was considered appropriate subject to other considerations such as the availability of funds. The primary objectives of the technical delegation from CETESB would be:

- to visit C&P and other research facilities to acquire first hand information;
- complete the exchange of information;
- draw a list of project proposals and prepare project outlines;
- develop a draft action plan for the Working Group.

ISSUES TO BE ADDRESSED

A number of issues needs to be addressed to follow up the February 5 meeting and the initiation of the C&P/SMA MOU.

Amendments to MOU

Minister J. Whilhelm and Mr. A. Campeau have agreed that the Joint Working Group will be composed of six persons instead of four persons.

Action:

J.R. Rousseau to prepare a briefing for C&P ADM and a letter for her signature to CETESB to propose amendment to the MOU.

Nomination of the Representatives on the Joint Working Group

CETSB and C&P need to nominate representatives and substitutes. It was the understanding of the Technical Delegation that senior science managers would be recommended to the ADM C&P.

Action:

J.R. Rousseau to consult HQ DGs and seek their views.

J.R. Rousseau to prepare a letter for ADM signature to CETESB President to inform him of C&P representatives.

Organisation of a Seminar in Sao Paulo on advance waste water treatment

A commitment was made by the Technology Development Branch to organize a seminar in Sao Paulo.

Action:

A. Jolicoeur to consult and make arrangements.

Organisation of a visit by CETESB officials

At the Frebuary 5 meeting, it was agreed that a technical mission from CETESB (and SMA) would visit C&P in May.

Action:

J.R. Rousseau to consult CETESB, C&P/DOE and External Affairs officials to determine the feasibility and to seek views of ADM and C&P Executive Committee.

Action Plan/Development of Projetcs

The C&P/SMA MOU calls for the development of an action plan. It was agreed that such a plan could be developped after the visit to C&P by a CETESB technical mission in 1990 and the nomination of the representatives on the Joint Working Group.

Action:

C&P representatives on the Joint Working Group to request the development of projects proposals.

Funding of future missions
and cooperativbe R&D projects

The funding questions is addressed as part of the Green Paper/Environment Agenda. As funds should not be expected in the short run and since no funds would be specific to the C&P/SMA MOU, there is a need to secure a source of funds for the next 6 to 18 months.

Action:

J.R. Rousseau to consult External Affairs, Sao Paulo Consulate to obtain financial support for the visit to C&P of a technical mission from CETESB in 1990.

The Technology Development Branch to provide funds for the Seminar in Sao Paulo.

Working Group representatives to prepare an estimate to support a three years action plan based on the project proposals.

Development of an MOU
at the federal level

The Environmental Mission to Brazil has explored the possibility of development an umbrella MOU at the federal level.

Action:

J. R. Rousseau to consult CPG and CPG to consult External Affairs to assess the best approach.

J. R. Rousseau and E. Ongley to develop a short paper defining the basic strategy of C&P should there be an MOU at the federal level.

NEXT MEETING OF WORKING GROUP - AGENDA

The date for the next formal meeting of the Joint Working Group was not specified. It was understood that if possible, a technical delegation from CETESB would visti C&P in May 1990.

The following agenda reflexts the discusion at the February 5 meeting at CETESB.

February 1990	Visit of C&P Technical Delegation to CETESB to initiate the MOU and to hold the launching meeting of the Joint Working Group.
April 1990	C&P and CETESB coordinators exhange information.
May 1990	CETESB Technical Delegation visit C&P.
Summer 1990	Development of project proposals.
Fall 1990	Visit of 2nd C&P Technical Mission to CETESB to finalize Action Plan.

It seems to have been the understanding that the training session, the seminar would take place between May and Fall 1990.

and State of São Paulo, as appropriate.

Article II

Administration

1. The "Companhia de Tecnologia de Saneamento Ambiental-CETESB" will be the executing agent for the State of São Paulo with the assistance of the "Secretaria do Meio Ambiente do Estado de São Paulo", for the purpose of the present Complementary Arrangement.

2. The Director-President of the "Companhia de Tecnologia de Saneamento Ambiental - CETESB" administers this Complementary Arrangement for the "Companhia de Tecnologia de Saneamento Ambiental - CETESB".

3. The Assistant Deputy Minister of the Conservation and Protection Branch of Environment Canada administers this Complementary Arrangement for the Conservation and Protection Branch of Environment Canada.

4. If there are other organizations in either Canada or Brazil interested in participating in this Complementary Arrangement they may be included either on an ad-hoc basis, for specific issues, or on a permanent basis on agreement by both parties.

5. A joint working group will be established to administer and implement the Complementary Arrangement. The Group will consist of four members, each Party designating two members, and will meet at least once every two years. The location of the meeting will alternate between the two countries starting with Brazil (State of São Paulo).

Article III

Scope

1. The topics of collaboration will be selected by the working Group from those listed in Annex I.

2. Additional topics may be included with the consent of both parties.

3. This Complementary Arrangement encourages joint projects as well as joint publications.

Article IV

Finances

1. Each Party will pay its own costs for administration of this Complementary Arrangement.

2. For reciprocal exchanges of delegations, study teams or individuals, the international travelling expenses will be born by the Sending Party and in-country expenses will be met by the receiving side. The number of the persons dispatched and the duration of stay will be on an equal and reciprocal basis. When the number of persons sent by one Party and their duration of stay exceed the reciprocity arrangements, the Sending Party will bear all the additional expenses in the host country.

3. When assistance is requested by one Party, that Party will pay for all the costs incurred in the assignment, unless the two parties undertake otherwise.

4. Neither Party will assume responsability for medical or hospital expenses incurred by the participants. It is the responsability of individual participants to obtain adequate insurance coverage in the event of illness or accident during visits in the host country.

Article V

Proprietary Rights

1. The proprietary rights derived from any published material, invention or development resulting from joint projects carried out under this Complementary Arrangement belong to the authors or their respective institutions, according to the laws of each country.

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Article VI

Effective Date

1. This Complementary Arrangement will take effect upon exchange on diplomatic notes. It will remain in effect for an initial period of five years and may be renewed through diplomatic channels for an additional period of time to be negotiated by the parties. It may be terminated by either Party by providing twelve months written nptice through diplomatic channels, to the other Party.

Signed in São Paulo, this fourteenth day of February 1989, in triplicate , in the Portuguese, English and French languages, each version being equally authentic.

JORGE WILHEIM
"SECRETÁRIO DO MEIO AMBIENTE
DO ESTADO DE SÃO PAULO"

THE HONOURABLE HARVIE ANDRE, P.C.,
M.P. ON BEHALF OF THE CONSERVATION AND
PROTECTION BRANCH OF ENVIRONMENT
CANADA

ROGÊ FERREIRA
"DIRETOR-PRESIDENTE"
"COMPANHIA DE TECNOLOGIA DE
SANEAMENTO AMBIENTAL-CETESB"

NELSON VIEIRA DE VASCONCELOS
"DIRETOR DE NORMAS E PADRÕES
AMBIENTAIS"
"COMPANHIA DE TECNOLOGIA DE
SANEAMENTO AMBIENTAL-CETESB"

ANNEX I

1. WATER

- . Monitoring for Quality, Quantity and Use
- . Water Quality Guidelines and Objectives
- . Data Storage and Retrieval Systems
- . Interpretation and Reporting
- . Instrumentation
- . Effluent Regulations
- . Development of New Technologies for Water Treatment and Desinfection
- . Flooding
- . Climate Change and Hydrologic Cycle
- . Interbasin Water Transfers
- . Integration of Water Quality, Quantity and Use, and Land Data

2. AIR

- . Monitoring
- . Standards
- . Emission Controls
- . Data Storage and Retrieval Systems
- . Interpretation and Reporting
- . Modelling

3. TOXIC CHEMICALS

- . Legislation and Regulation
- . Management
- . Environmental Effects
- . Emergencies
- . Disposal
- . Risk Analysis
- . Research and Study of Products Treatment, Disposal and Retrieval
- . Analysis

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4. LONG RANG TRANSPORT OF POLLUTANTS

. Acid Rain
. Toxic Rain

5. HUMAN RESOURCES

. Training - Short Term and Pos Graduation Courses
. Exchange of Professional Staff
. Workshop and Seminars on Specific Topics

6. LABORATORIES

. Methods of Physical, Chemical and Biological Analysis
. Quality Assurance
. Instrumentation
. Management
. Bioassaeis Implementation

7. ENVIRONMENTAL RESEARCH

. Analytical Methods
. Environmental Contaminants
. Euthrophication
. Acid Rain
. Physical and Mathematical Modelling
. Environmental Indicators
. Effects of the alcohol motor emissions in the Air Pollution

8. LAND USE

. Land Degradation and Conservation
. Land Allocation and Management
. Land Classification Systems
. Land Use Standards
. Zoning
. Land Use Data Collection, Management and Analysis
. Groundwater Protection and Remediation
. Urbanization
. Deforestation

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. Effects of the Wastes Application

9. ENVIRONMENTAL EDUCATION

. Publications
. Courses
. Public Hearings
. Training Kits for Schools
. Audio-Visual Material
. Community Programs

10. LEGISLATION AND MANAGEMENT OF ENVIRONMENTAL ISSUES AND PROGRAMS

. Resources Management
. Pollution Control
. International Issues
. International Organizations
. Bilateral Relations
. Interjurisdictional Issues Management

11. INFORMATION STORAGE, RETRIEVAL AND EXCHANGE

. Computerized Data Storage and Retrieval Systems
. Bibliographic Information Systems
. Exchange of Publications

12. WASTEWATER

. Effluents Regulation
. Treatment
. Low-Cost Technology
. Receiving Waters
. Sea Outfall
. Development of New Technologies for Treatment
. Re-use Studies